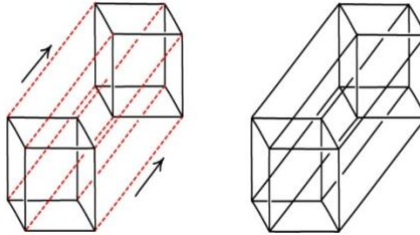


Time – The Fourth Dimension

Time(Fourth dimension)



Dear friends, in my previous post I introduced you that time is the fourth dimension of space-time geometry. Now I would like to introduce the concepts to understand the fourth dimension time. We can easily understand the spatial dimensions. Take three sticks and join their one ends at a single point and then place them such that they all are mutually perpendicular to each other. In this way, the three sticks represent the three dimensions of space and the junction where the three sticks are joined represents the origin. Now let us understand the time dimension. Time coordinate(or dimension) can't be represented like this method. We can't see the time dimension. It is not easy to visualize it. It can be understood only by our thinking. Suppose you are sitting on a chair in your reading room. Place the three dimensional space coordinate system (formed by the three sticks) on a table near the chair. When you are sitting on the chair, you are at rest in the three space dimensions i.e. you have no motion in the space dimension. Now look at your watch, you will notice that the time is passing. The passing of time means that you are moving in the time axis (dimension). When we are at rest in space dimensions, our entire motion is in the time dimension. So the time passes rapidly for stationary object(observer). Suppose you have sat on the chair for time period t . Then you have travelled ct distance in the time axis(dimension). Here c is the speed of light. Time dimension is not visible to us. We can only feel(understand) it by the passing of the time. The coordinates of an event in space-time geometry is represented by $(x,y,z \text{ and } t)$. Next time we will try understand more about its transformation from one coordinates system to other.

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